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ABSTRACT

This self-instructional, self-paced module is the second of five in the series, Competency Based Education Inservice for Part time Community College Occupational Education Teachers. (See note for other modules.) Its purpose is to enable the teacher to identify, write, and modify performance objectives, particularly for the teacher's own area of specialization. Contents include these sequential elements: introductory material, including performance and enabling objectives and background information (such as time duration): exemption, prerequisite skills, and exit tests; a series of learning experiences corresponding to enabling objectives with a test and feedback section for each experience; and a community college applications section. This final section provides examples of the concept in this module applied to a variety of Community College Occupational Programs and discusses special considerations for community college instructors. A glossary is appended. (YLB)

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PERFORMANCE OBJECTIVES module #2

SELF INSTRUCTION MATERIALS IN-SERVICE PART-TIME COMMUNITY COLLEGE TEACHERS

PROJECT TITLE:

COMPETENCY BASED EDUCATION INSERVICE FOR PART TIME COMMUNITY COLLEGE OCCUPATIONAL EDUCATION TEACHERS.

PROJECT NUMBER:

3256 - 7197

This project will orientate part-time community college teachers to the mission, nature, and purpose of Michigan Community College Occupational Technical Education, and the use of Competency Based Education.

This project was developed by Washtenaw Community College, Ann Arbor, Michigan in cooperation with Rande Ltd., Research and Development in Education, consultants responsible for adapting Michigan Department of Education CBE III materials for this project.

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CBE 2

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)"

PREFACE

The materials you are about to study is one of six modules in an instructional sequence for community college instructors. They are:

0. Orientation to Michigan Community Colleges
1. Program Goals or Competencies
2. Performance Objectives
3. Objective-Referenced Testing
4. Selecting Learning Activities
5. Follow-up and Evaluation

Each module can be covered as a unit. For comprehensive knowledge of the elements of competency-based education, as it applies to the community college, all six modules should be completed. These instructional modules and their supporting materials have been designed to allow you to work at your own pace in a location of your choice.

Each module contains the sequential elements which have been color coded to highlight each component:

1. Introductory Material.....Yellow
   (including Performance Objectives)
2. Tests (Exemption, Prerequisite Skills, and Exit Tests).....Green
3. A Series of Learning Experiences.....White
   (with a test and feedback section for each experience)
4. Appendices.....Blue
5. Community College Application.....Pink

Therefore, you will notice that only the white pages contain the information and exercises you will need to complete to learn each knowledge, skill, or judgment. The remaining pages are provided for your individual use and information as you work through the module.

The examples provided in this module relate to a variety of educational settings. However, you will find that the pink Community College Application section provides examples of the concept in this module applied to a variety of Community College Occupational Programs. Futhermore, this application section includes a discussion of special considerations for community college instructors.

> Read the beginning of the pink section before starting the module; then read the second part of the pink section after completing the module. In this way the Community College Application section should help you develop a CBE framework for your area of specialization.

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I. INTRODUCTION

In the first module, you learned to develop and write program goals. In this second module, you will study performance objectives, another basic element of competency based instruction.

What are the components and/or identifiable traits of such objectives? When and how can performance objectives improve learning results in classrooms?

The purpose of this module is to enable you to identify, write, and modify performance objectives, particularly for your own area of specialization. The end result will be a set of terminal performance objectives for a course you teach.

II. PERFORMANCE OBJECTIVES

Terminal Performance Objective

Given program goals in your area of specialization, you will write a set of terminal performance objectives for one course in that program. All of the terminal performance objectives will:

(a) describe what the learner will do in behavioral terminology at the end of the course
(b) describe under what conditions the learner will perform
(c) describe how well the learner will perform
(d) relate to one or more program goals
(e) be at an appropriate level of specificity for a terminal performance objective
(f) describe the outcomes of the course

Enabling Objectives

1. You will define and describe the rationale and application of performance objectives (non-tested).

2. You will differentiate between behavioral and non-behavioral statements which describe the outcome of instruction by correctly labeling five out of five examples.

3. You will identify the three components of a performance objective by labeling each part in a single objective in three out of three examples.

4. Given two program goals from a program in your area of specialization, you will write at least two terminal performance objectives which support each goal. All objectives must meet those criteria described in the terminal performance objective of this module.

III. BACKGROUND INFORMATION

A. This instructional module is designed to help you achieve these program goals:[1]

1. FORMULATE PERFORMANCE OBJECTIVES FOR LESSONS, UNITS, AND COURSES.

2. ESTABLISH CRITERIA FOR EVALUATION OF PLANS FOR LESSONS, UNITS, AND COURSES.

3. ANALYZE THE LEARNING TASK (SKILLS, OPERATIONS, AND PROCEDURES) AND PUT THEM IN SEQUENCE.

B. This module should take approximately two hours to complete. This estimated time may help you to pace yourself.

C. Many informative articles and books are available on performance objectives. A sample list appears below.

Bloom, Benjamin S., et al., Taxonomy of Educational Objectives: The Classification of Educational Goals. Handbook I: Cognitive Domain. (New York: David McKay Company, 1956).

Krathwohl, David R., et al., Taxonomy of Educational Objectives: Affective Domain. (New York: David McKay Company, 1956).

Mager, Robert F., Measuring Instructional Intent, (Belmont, California: Fearon Publishers, 1973).

Mager, Robert F., Preparing Objectives for Programmed Instruction. (San Francisco: Fearon Publishers, 1961).

Tyler, Ralph W., Constructing Achievement Tests. (Columbus, Ohio: Ohio State University, 1934).

You may wish to explore these later, but no outside reading is necessary for the successful completion of this module.

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[1] These program goals were developed by the teachers who participated in the Michigan COAST Project 1974-75. This was a statewide effort to design a model competency-based teacher education program for all secondary teachers. This project was led by Wayne State University and Ferris State College.

IV. EXEMPTION TEST

A. Rationale

A basic concept of competency-based education is to provide instruction to meet the needs and abilities of each individual student. A first step is to determine whether the student, you in this instance, needs this instruction or if you already have the knowledge, skills, or judgments in question. So, you're now being asked to take an Exemption Test. In general, an Exemption Test is administered to assess achievement of course performance objectives. It is administered before instruction; passage exempts the learner from that instruction.

This test will not affect your class standing, but it helps you in two ways:

1. The Exemption Test covers the learning on the Exit Test. So, you get to take the test in advance.

2. By succeeding on the Exemption Test, you may bypass portions, or all, of the instruction. Then, you can spend your time on other parts of the program.

Module 2 - Performance Objectives

EXEMPTION TEST RESPONSE SHEET

Student's Name: _____

DIRECTIONS:

1. The Exemption Test assesses achievement of this module's performance objectives. It is administered before instruction; passage exempts the learner from that instruction.
2. Use this test before working through the module.
3. Do not write on, or use, this section after you have read the module or completed the learning experiences.

Enabling Objective #2[2]

There are five statements below. Check (✓) those which are behavioral.

_____ 1. The student will learn at least three services provided by the federal government and not provided by the state government.

_____ 2. The student will analyze a philosophical statement and identify the assumptions upon which the statement is based.

_____ 3. The student will demonstrate a knowledge of the metric system.

_____ 4. The student will demonstrate the use of the secretary's handbook by answering four given questions.

_____ 5. The student will behave as an intelligent consumer.

---

[2]Enabling Objective #1 is non-tested. Therefore, there is no Exemption Test component for this portion of the module.

Enabling Objective #3

For each of the following objectives, label the component parts. Draw a circle around the conditions; draw a line under the performance; and, draw two lines under the criteria.

1. Given a paragraph of English (approximately 100 words), the learner will translate into Russian with no more than three errors.

2. The student will correctly identify an example of American Ragtime after listening to three records, each illustrating a different style.

3. The student will describe the research activities of any five United States doctors during the 1950's, using reference sources of one's own choosing. The description must include the research topic, significant findings, and implications for the future.

Enabling Objective #4

Select two program goals from the list of goals for a program in your area of specialization. Write the goal in the space provided.

Program Goal #1

_____

_____

Now write two terminal performance objectives (TPO's) which support that goal.

Terminal Performance Objective #1.1

_____

_____

_____

_____

Terminal Performance Objective #1.2

Program Goal #2

Terminal Performance Objective #2.1

Terminal Performance Objective #2.2

Terminal Performance Objective

Select one course in a program in your area of specialization. Write a set of terminal performance objectives (TPO's) for that course. Write your objectives on another piece of paper. At the top of the page provide the following information:

Name of Prcgram

Name of Course (or grade level and subject area for the elementary level)

After each TPO indicate in parentheses the number of the program goal which the TPO supports. It is assumed that you already have a list of program goals available for use. Attach this list to your course TPO's.

To evaluate yourself on the Exemption Test, turn to the check list that follows.

Feedback

Use this check list to evaluate yourself. Go over each item in the list and see if your responses were correct.

Enabling Objective #2

____ 1. The student will learn at least three services provided by the federal government and not provided by the state government. (The statement is not only not behavioral, but, in addition, it does not describe the outcome of instruction. It describes the learning process.)

✓ 2. The student will analyze a philosophical statement and identify the assumptions upon which the statement is based. (This statement has two verbs. Both are behaviorally stated.)

____ 3. The student will demonstrate a knowledge of the metric system. ("Demonstrate" sounds behavioral, but the total statement is not. How will the students demonstrate their knowledge?)

✓ 4. The student will demonstrate the use of the secretary's handbook by answering four given questions. (While this statement looks like #3, there is a significant difference. You know how the students will demonstrate the use of the handbook.)

____ 5. The student will behave as an intelligent consumer. (Did you get caught? How will the student behave? This must be answered.)

All five statements must be correctly labeled.

Were you correct? ____ YES ____ NO

Enabling Objective #3

1. Given a paragraph of English (approximately 100 words), the learner will translate into Russian with no more than three errors.

2. The student will correctly identify an example of American Ragtime after listening to three records, each illustrating a different style.

   (It is assumed in this objective that the three records will be distinctly different in style and that one would be either correct or incorrect.)

3. The student will describe the research activities of any five United States doctors during the 1960's using reference sources of one's own choosing. The description must include the research topic, significant findings, and implications for the future.

   All three components must be correctly labeled in each of the three performance objectives.

   Were you correct? _____ YES _____ NO

Enabling Objective #4

Use the following check list to analyze your answers to determine if they are correct. It is assumed that your program goals have been corrected in Module #1. If you are not sure if your goal is correctly stated, refer to Module #1 for the criteria.

Terminal Performance Objectives

	TPO #1.1 Yes	TPO #1.1 No	TPO #1.2 Yes	TPO #1.2 No	TPO #2.1 Yes	TPO #2.1 No	TPO #2.2 Yes	TPO #2.2 No
1. Are the conditions correctly stated?	___	___	___	___	___	___	___	___
2. Is the desired performance correctly stated?	___	___	___	___	___	___	___	___
3. Are the criteria correctly stated?	___	___	___	___	___	___	___	___
4. Would one have to achieve the TPO in order to master the program goal?	___	___	___	___	___	___	___	___
5. Does the TPO describe the testing situation rather than the learning situation?	___	___	___	___	___	___	___	___
6. Is the TPO at an appropriate level of specificity?	___	___	___	___	___	___	___	___

All "yes's" must be checked for all four TPO's.

Were you correct? _____ YES _____ NO

Terminal Performance Objective

Analyze each TPO on your list using these standard criteria below.

	Yes	No	If no, which TPO's are incorrect?
1. Are the conditions correctly stated?	___	___	_____
2. Is the desired performance correctly stated?	___	___	_____
3. Are the criteria correctly stated?	___	___	_____
4. Would one have to achieve the TPO in order to master the program goal?	___	___	_____
5. Does the TPO describe the testing situation rather than the learning situation?	___	___	_____
6. Is the TPO at an appropriate level of specificity?	___	___	_____

All of the course TPO's must be perfectly written. Thus, all "yes's" must be checked.

Were you correct? _____ YES _____ NO

Each part of this Exemption Test was related to an objective. If you mastered any part, you will be exempted from that portion of the learning experience. If you have a perfect score on the entire test, you are completely exempted, for you already have the skills and knowledge presented in this module. If you did not do well, it will be necessary for you to complete the module. If you have any questions or need more information, see an instructor if one is available. If an instructor is not available, go to an expert in your school system for help.

V. PREREQUISITE SKILLS TEST

A. Rationale

Many things learned in a program are based upon knowledge or skills previously learned; and unless a student remembers everything, he may have trouble with the new instruction. So, the next step is to take the Prerequisite Skills Test. It tests for skills and competencies upon which the instructional program is based but which are not directly taught in the course, hence they are prerequisite.

B. The Test

Indicate which items on the following list are program goals by writing "PG" on the line at the left.

_____ 1. The learner will diagnose and repair defective radios.

_____ 2. The learner will identify three of the original 13 colonies and describe in 100 words their major role in the American Revolution according to the text.

_____ 3. The learner will appreciate Abraham Lincoln.

_____ 4. The learner will use measuring devices.

_____ 5. The learner will distinguish between the hard "c" and soft "c" in initial consonants.

_____ 6. The learner will translate French into English.

_____ 7. The learner will describe the major American reform movements.

_____ 8. The learner will participate in three field trips.

_____ 9. The learner will ignite and operate a conventional home gas dryer.

_____ 10. The learner will exercise daily.

C. Feedback

✓ 1. PG

____ 2. This is a performance objective, not a program goal.

____ 3. Because this is not behavioral, it is not a program goal.

✓ 4. PG

____ 5. This is too specific for a program goal.

✓ 6. PG

✓ 7. PG

____ 8. This is a learning process, not a student outcome. Therefore, it is not a program goal.

✓ 9. PG

✓ 10. PG

If you correctly identified the six behavioral statements, you are ready to begin Module 2. If you missed any of these goals, you should complete the learning experiences in Module 1 - Program Goals.

VI. LEARNING EXPERIENCES

Rationale for Performance Objectives

Enabling Objective #1

You will define and describe the rationale and application of performance objectives (non-tested).

This theoretical objective is designed for the inquiring mind who likes to know the "why" of something as well as the "how." Just as one can learn to drive a car without knowing the history of the automobile, one can learn to write performance objectives without knowing their origins. After all, the terminal objective of this module is "how to."

However, experience has shown that people tend to write better performance objectives when their function is clearly in mind. A performance objective can be defined as:

> a statement of educational intent that indicates the behavior a student will demonstrate upon successful completion of a learning experience.[3]

In other words, performance objectives precisely describe what students should do to pass a course, or module, or some other unit of instruction. One could say that a performance objective is a description of the testing situation when the student passes.

Performance objectives are sometimes referred to as "behavioral objectives" or "performance goals" or

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[3]See the Glossary in the Appendix for a list of definitions of all key words used in this module.

"instructional objectives." In most cases one can assume that all of these terms mean the same thing.

Ralph Tyler is commonly referred to as the "father of behavioral objectives." While others could probably claim this role, he is at least one of the pioneers, beginning with the now famous Eight-Year Study.[4] With the onset of the 60's, the use of performance objectives expanded. There were four key factors:

1. Mager's[5] very readable, very brief self-instructional book
2. The enthusiasm of programmed instruction advocates with their heavy reliance on well-stated objectives
3. The acceptance of Bloom[6] and Krathwohl's[7] Taxonomies
4. The insistence of the United States Office of Education that proposals include behavioral objectives

Through such work, educators began to systematize their approach to learning by describing student outcomes in the form of performance objectives. These descriptions have been used to build instructional programs at lesson, unit, course, and program levels.

---

[4]Tyler, Ralph W., Constructing Achievement Tests. (Columbus, Ohio: Ohio State University, 1934).

[5]Mager, Robert F., Preparing Objectives for Programmed Instruction. (San Francisco: Fearon Publishers, 1961).

[6]Bloom, Benjamin S., et al., Taxonomy of Educational Objectives: The Classification of Educational Goals: Handbook I: Cognitive Domain. (New York: David McKay Company, 1956).

[7]Krathwohl, David R., et al., Taxonomy of Educational Objectives: Affective Domain. (New York: David McKay Company, 1956).

Performance objectives serve many purposes in the schools. Primarily they promote communication about instruction. Further articulation between teachers, students, administrators, and parents has been made possible. Performance objectives also tend to promote more detailed planning and to assure that students will achieve the program goals. Finally, performance objectives provide the basis for classroom testing. (This latter point will be discussed in detail in Module #3.)

If much of this discussion sounds like a description of things you have been doing all along, it may well be. But, let's refine your knowledge, agree on common terminology, and hopefully make your job easier and your results more effective.

Identifying Behavioral Statements

Enabling Objective #2

You will differentiate between behavioral and non-behavioral statements which describe the outcome of instruction by correctly labeling five out of five examples.

To write performance objectives, you have to think in behavioral terms. What does that mean? Simply this: use precise, measurable verbs. For example, which of the following is more precise?

A. The student will understand artificial respiration . . .

OR

B. The student will apply artificial respiration . . .

Your Answer: _____

While it may be argued that application is evidence of understanding, the reverse is not necessarily true. Need an example? If you were drowning, would you prefer that a swimming buddy apply the principles of artificial respiration by saving your life or that your buddy sit on the beach saying over and over, "I understand the principles of artificial respiration."? Pretty ridiculous question? Of course, action is what is desired; behavioral verbs are action verbs. The answer? "B"

Put it another way: If your objectives are written in behavioral terms, you can answer the following question. What must learners DO to show that they have achieved the objective? In this example, which of the statements clearly indicates the learner's activity?

A. The learner will appreciate classical music . . .

OR

B. The learner will name three composers of classical music . . .

Your Answer: _____

Obviously, a more precise activity is "naming." "Appreciation" could imply anything from buying $100 worth of Mozart's records to delivering an eloquent essay on the qualities of the great artist's works, or just listening. (This does not imply that "developing an appreciation" may not be an important objective for teachers of students of music. But, it fails to communicate the intent of the teacher. What will the teacher accept as evidence that such an appreciation has, in fact, been developed?)

In a third example, select the statement that clearly describes what the learner is expected to do:

A. The learner will understand algebra . . .

OR

B. The learner will solve ten quadratic equations . . .

Your Answer: _____

Again, "B" is the obvious answer. Does "understand" mean that learners can solve certain algebraic equations, or does it mean that they give cues, such as nodding their heads very thoughtfully three times during the teacher's lecture?

Some writers have found a list of specific verbs helpful in getting them started in this process of thinking behaviorally. Such a list is by no means exhaustive. Perhaps a sampling will help you.

Words Open to Fewer Interpretations (Behavioral)	Words Open to Many Interpretations (Non-behavioral)
to compare	to appreciate
to construct	to be aware
to define	to believe
to distinguish	to enjoy
to list	to feel
to match	to fully grasp
to recite	to know
to run	to learn
to select	to like
to solve	to master
to state	to perceive
to transcribe	to realize
to translate	to really understand
to type	to respect
to write	to understand

For a more complete list of behavioral verbs, see the appendix of Module #1.

The words you want to use, these action words, must not only be precise, but they must be measurable. Examine the following two statements. Which one is measurable?

1. The student will understand the causes of the Revolutionary War.

OR

2. The student will describe the causes of the Revolutionary War.

Did you say #2 was measurable? Right. You can see or hear the description and decide if that's good enough. In other words, you can measure the student's performance or knowledge. You can measure "understanding" without asking the student to do something.

Let's try one more. Which of the next two statements is measurable?

1. While observing a basketball game, the student will demonstrate his knowledge of the rules of basketball.

OR

2. While observing a basketball game, the student will point out any infractions of the rules that occur.

Again, no one, even the writer, can interpret statement #1 precisely. Does he want the student to write out the rules, recite the rules, select properly-stated rules from a list of both properly- and improperly-stated rules, etc.? The terminal behavior is not identifiable nor measurable; therefore, the statement is not behavioral.

However, in a performance objective the action verb must do a very specific thing--it must describe the outcomes of the instruction. Previously this was explained as being a description of the testing situation--not the learning situation. This is usually a good way to remember this point.

Here's another way of looking at this. Your objective must describe a product, not a process. An example of a process is a description of a learning activity rather than an end result.

> For example: The learner will develop his skill in playing table tennis properly over a period of six weeks. (This clearly describes the process the student proceeds through and not an end result.)
>
> The product description would be: The learner will demonstrate the short serve using the appropriate stroke and "wrist action."

After you have written an objective, ask yourself: Have I described a learning activity or a student assignment, or have I described an end result? This is an important distinction to remember. And, watch the word "develop." When this word is used, chances are the outcomes are not being described.

Now turn to the Response Sheet for Enabling Objective #2 and check yourself to see if you can identify behaviorally-stated outcomes.

Response Sheet for Enabling Objective #2

Apply your knowledge of measurable verbs and clearly-defined instructional outcomes by checking (✓) the behavioral statements below.

_____ 1. The learner will demonstrate an understanding of the scientific method.

_____ 2. The learner will translate a paragraph of Spanish into English.

_____ 3. The learner will value the role of the blue-collar worker in American society.

_____ 4. The learner will correctly match 20 of 30 sewing terms with their definitions.

_____ 5. The learner will learn three practical applications of the use of magnetism in industry today.

Now turn to the Feedback section and check your answers.

Feedback

____ 1. The learner will demonstrate an understanding of the scientific method.
(Who but the instructor knows what behavior is desired? In fact, does the instructor know?)

✓ 2. The learner will translate a paragraph of Spanish into English.

____ 3. The learner will value the role of the blue-collar worker in American society.
(What is meant by "value"? This is not measurable.)

✓ 4. The learner will correctly match 20 of 30 sewing terms with their definitions.

____ 5. The learner will learn three practical applications of the use of magnetism in industry today.
(The verb is not behavioral and the statement does not describe an outcome.)

If you had no errors, move on to the next section of the module.

If you missed any of the above answers, go back and read this section of the module again.

Components of a Performance Objective

Enabling Objective #3

You will identify the three components of a performance objective by labeling each part in a single objective in three out of three examples.

Being able to identify behavioral outcomes, as you did in Enabling Objective #2, is a giant step toward successfully completing the final product--a measurable, observable performance objective. Now, in Enabling Objective #3, you will learn the component parts necessary to the building of the final objective.

The Michigan Department of Education Model performance objective has six components:

1. Performer
2. Behavior
3. Object of Behavior
4. Time
5. Measurement Methodology
6. Criteria

To simplify the mastery of writing performance objectives, these six components have been assimilated into three major categories:[8]

1. Performance
2. Conditions
3. Criteria

---

[8]This consolidation of performance objective components was made by the Vocational-Technical Education Services in their performance objective project.

Performance: *what the learner is expected to do.*

There are two major factors in the performance component of an objective:

1. Is the performance statement behavioral?
2. Does the performance statement describe the instructor's intent?

As you already learned, the performance statement must be in precise, measurable terms. Since the verb will be an action verb, the objective of the action will also be included.

For example, the following statements are samples of the performance component of a performance objective:

The student will analyze and identify unknown words.

The student will prepare a resume or data sheet.

The student will solve basic arithmetic problems using an adding machine or calculator.

The second consideration is, does the "performance" convey the intent of the objective? Or, as Mager says, "Got a match?"[9] This point cannot be overreemphasized. Be sure you understand it completely.

Here's an example: In a Consumer Education class, the teacher's intent is to convey information to the students about different sources of credit available to the consumer. A performance objective for this class might read:

> Given an amount of money to be borrowed and the interest rates available from three credit sources, the student will determine the most economical source of credit by computing the actual rate charged by each source.

---

[9] Mager, Robert F., Measuring Instructional Intent, (Belmont, California: Fearon Publishers, 1973).

The instructor has lost the original intent, which was to convey information about different sources of credit. If students are very poor in mathematics and cannot compute an accurate interest rate, does this mean they have not learned that different sources of credit are available? Not at all. Very possibly, a student could name or list three sources of credit. This activity would match the intent. Ask yourself when comparing your program goal and your objective, "Got a match?" If the answer is "yes," that's great! If the answer is "no" or doubtful, rewrite.

Conditions: *the conditions under which the behavior will be expected to occur.*

In terms of writing, what does that mean? Conditions may include any constraints of time and/or materials placed on learners that affect or limit their performance. Sample condition statements include:

Given a reference of the learner's choice....
Given the necessary tools and materials....
While participating in a game of football....
Given a list of anatomical terms....
Without the use of reference materials....

Yes, the condition statement often begins with "given." This is not sacrosanct; it is simply an easy way for learners in the writing of performance objectives to begin.

There is one word of caution. Since the performance objective is an outcome statement, the conditions should not contain learning devices. For example, this is wrong:

Given a slide-tape presentation and text materials, the student will measure using a metric micrometer.

The textbook and the slide-tape are not needed in the testing situation. Rather they are learning activities. Remember, a performance objective is an outcome statement, a description of the testing situation. Notice the difference in the correctly-worded objective below:

> Given five line segments, the student will measure them using a metric micrometer.

Of course, many teachers quite correctly make some logical assumptions in the conditions component of their performance objectives. Technically, one might say:

> Given a typewriter with a ribbon, a piece of paper, and an excerpt from a text, the student will type 45 words per minute.

This objective is carrying precision a little too far. Obviously you need a typewriter and so forth if you're going to type. You can leave this detail out and just assume everyone will understand they'll be used.

When does something become critical to specify as conditions? Primarily when they affect the difficulty of the task. For example, typing technical copy is different than typing a short story, and typing a letter is different than typing straight narrative copy. Most things are important. We usually just leave out the obvious.

Criteria: *the minimum acceptable performance that the instructor will accept as evidence of achievement of the objective.*

Up to this point, you have told the students precisely what you want them to do and under what conditions; equal precision in how well they must perform is also necessary. This

is the criteria component of a performance objective. Typically, this is the most difficult part of an objective to specify. Below is a sample performance objective with a double line under the criteria component:

> Given a steel rule and ten lines of various length, you will measure the lines and record the length to the nearest sixteenth of an inch.

The criteria can be expressed in many ways. Some of these techniques include specifying:

(a) the number or percentage of correct answers required
(b) the characteristics of an acceptable performance
(c) the required parts of a product (e.g., an essay, an actual object which has been constructed, etc.)
(d) the authority or reference to which the answer will be compared (e.g., American Red Cross First Aid Manual, teacher handouts, etc.)
(e) the time limits for completion of the task (included only when critical to the task)

And, within a given discipline there may be many other ways in which one can answer the question "Was the objective achieved to my standards?"

Let's examine some examples of criteria. The criteria component has a double underline.

Number or Percentage Correct

1. Given a list of farm products, the student will identify four that are found in tropical regions.

2. Given ten passages from a third grade reading text, the student will tell the meaning of 70% of new words by using context clues.

Performance Characteristics

1. Given technical reading material at the third grade level, the student will decode words with 85% accuracy by using the following techniques:

   (a) look for compound words
   (b) look for prefixes, suffixes, and word endings

(c) look for corsonant clusters at the beginning, the middle, and the end of words

(d) look for vowel diagraphs and dipthongs at the beginning, the middle, and the end of words.

2. Given unarranged copy, the student will type the material according to the following specifications:

(a) there must be four columns

(b) there must be six letter spaces between columns

(c) all errors must be corrected

(d) the copy must be vertically and horizontally centered

Product Parts

1. The student will describe the interviewing process. The description must include at least the following:

(a) pre-interview steps (e.g., how to set up an interview)

(b) interview steps (e.g., typical employer questions and interview topics significant applicant questions and topics)

(c) post-interview steps (e.g., notification of the outcome of the interview, follow-up correspondence)

Authority Reference

1. The student will do resistence measurements on component automobile parts as required in the manufacturer's service manuals.

2. Given an income tax form 1040A with tax tables 1-12 and a W-2 form with an income of less than $10,000, the form will be completed for a married person with one child as outlined with the example on the bulletin board.

Time Limits

1. Given a hospital bed and linens, the student will make an open or closed bed according to established procedures within 8 minutes.

Other (dependent upon subject)

1. Given a computer terminal currently running through a program, the student will log off the computer. The student will know if he has been successful if the computer types "LATER MAN."

WARNING. The percentage technique is used in many performance objectives. In fact, it is overused and often does not make sense. It has become a crutch. So, when identifying the criteria in your objectives if you are tempted to use a percent or number right, stop and analyze your thinking. Is this really the only criteria, or are you taking the easy way out? When percentage criteria are appropriate, the performance component is usually specified at a low level (e.g., identify, match, etc.).

Response Sheet for Enabling Objective #3

Now test your knowledge of the parts of the performance objective. Using the five objectives below, label the three component parts. Draw a circle around the conditions; draw a line under the performance; and draw two lines under the criteria.

1. Given a telephone directory and a list of names, the learner will locate individual and/or company names with 90% accuracy within an appropriate, specified period of time.
2. Given a picture, the student will interpret it. The interpretation will (a) be based on observable characteristics of the picture (b) be expanded to include what might have happened before and what could have happened afterwards. The answer could show imagination but must fit into the realm of possibility.
3. Given an auto tire and rim, a tire changing machine, an air line, and a guage, you will mount the tire on the rim so that it holds the required air pressure given on the tire.
4. The learner will name the seven Trucial States without the use of reference materials.
5. The learner will support a candidate of his choice in his campaign for election to a public office. Such support shall be validated by a written list of a minimum of three activities.

Now turn the page to the Feedback section and check your answers.

Feedback

Your answers should appear as follows:

1. Given a telephone directory and a list of names, the learner will locate individual and/or company names with 90% accuracy within an appropriate, specified period of time.

2. Given a picture, the student will interpret it. The interpretation will (a) be based on observable characteristics of the picture, (b) be expanded to include what might have happened before and what could have happened afterwards. The answer could show imagination, but must fit into the realm of possibility.

3. Given an auto tire and rim, a tire changing machine, an air line, and a guage, you will mount the tire on the rim so that it holds the required air pressure given on the tire.

4. The learner will name the seven Trucial States without the use of reference materials.

5. The learner will support a candidate of his choice in his campaign for election to a public office. Such support shall be validated by a written list of a minimum of three activities.

If you had no errors, move on to the next section of the module.

If you missed any of the above answers, go back and read this section of the module again.

Enabling Objective #4

Given two program goals from a program in your area of specialization, you will write at least two terminal performance objectives which support each goal. All objectives must meet those criteria described in the terminal performance objective of this module.

If performance objectives are derived from program goals, it is natural to ask how these goals relate to performance. As you learned in Module #1, program goals are broad in scope and represent planning for a total program. Therefore, two or more terminal performance objectives must be written for one program goal.

Performance objectives may be classified as either "terminal" or "enabling." Terminal objectives are behavioral statements of specific learner outcomes at the end of a course.* An example of a terminal performance objective would be:

> Given a paragraph of English (approximately 100 words), the learner will translate into Russian with no more than three errors.

Enabling objectives, on the other hand, are behavioral statements of student performance which are the steps a student would go through to complete the terminal objective. An example of an enabling objective would be:

> Given a list of ten Russian nouns, the learner will write the English meaning of each word.

It should be noted that enabling objectives are usually written for specific daily lessons.

The chart which follows visualizes the relationship between program goals and both terminal and enabling performance objectives.

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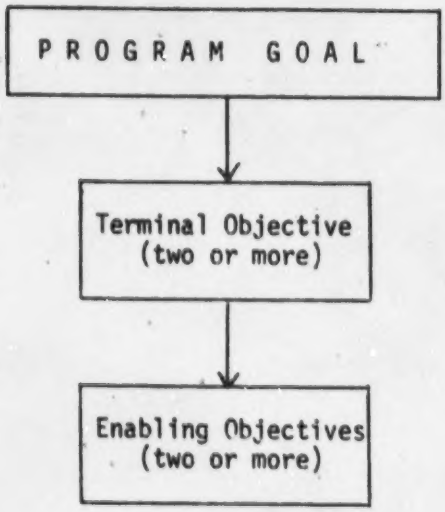
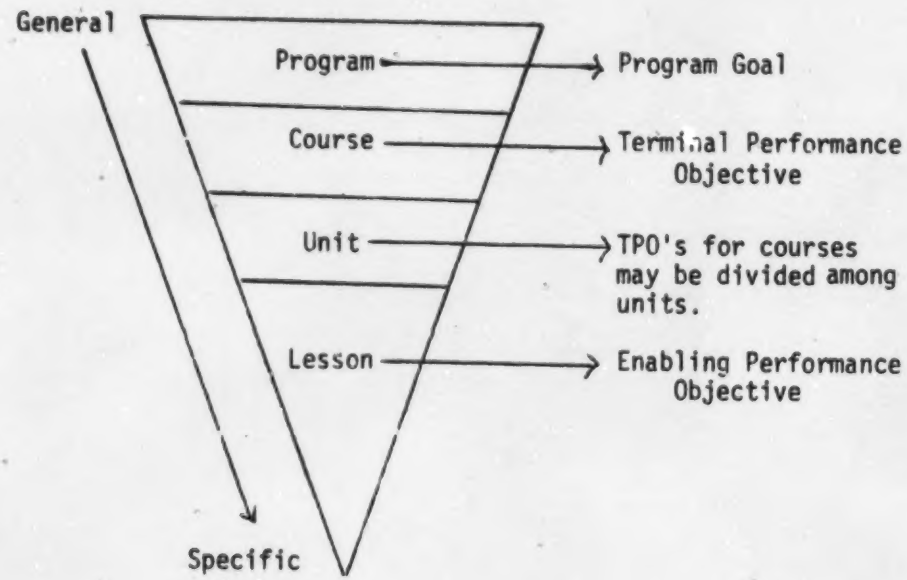
*See the glossary in the appendix for this and other related definitions. A detailed distinction is a technical matter and is beyond the scope of this module.

In chart form:



When writing program goals and objectives, you move from general to specific in a pattern similar to the following:



An example of the relationship between program goals, terminal performance objectives, and enabling objectives can be found right in this module. One program goal to which this module is related is:

Program Goal #1

Formulate performance objectives for lessons, units, and courses.

The terminal performance objective of this module is:

Terminal Performance Objective #1

Given program goals in your area of specialization, you will write a set of terminal performance objectives for one course in that program. All of the terminal performance objectives will:

(a) describe what the learner will do in behavioral terminology at the end of the course
(b) describe under what conditions the learner will perform
(c) describe how well the learner will perform
(d) relate to one or more program goals
(e) be at an appropriate level of specificity for a terminal performance objective
(f) describe the outcomes of the course

This is not the only terminal performance objective one would need to achieve in order to meet the stated program goal. Remember each program goal must have a minimum of two terminal performance objectives. There are others. One might be:

Terminal Performance Objective #2

Given program goals from your area of specialization, you will identify the major content components by completing a task analysis of that goal. Each component must be shown to be directly related to the program goal by showing that the task must be completed before another higher level task can be completed. The completeness of the list of tasks must be confirmed by two other specialists in your area.

Another related terminal performance objective might be:

Terminal Performance Objective #3

Given a content component of a program goal in your area of specialization, you will justify the inclusion of this task in a public school curriculum by

(a) identifying its criticality
(b) determining its frequency of use
(c) determining its level of "teachability" (i.e., too easy, too hard)
(d) relating it to the needs of your students

There are other terminal performance objectives, but this should be enough to get the idea.

Now, consider the enabling objective--the detailed objective for a lesson. This module again can serve as an example. For Program Goal #1, Terminal Performance Objective #1, some of the enabling objectives are:

Enabling Objective #1

You will define and describe the rationale and application of performance objectives (non-tested).

Enabling Objective #2

You will differentiate between behavioral and non-behavioral statements which describe the outcome of instruction by correctly labeling five out of five examples.

The major reason for pointing out this distinction is to emphasize the fact that you are now only being asked to write terminal performance objectives. One of the reasons teachers may balk at the task of writing performance objectives for their classes is the thought of engaging in what seems to be a neverending task. If the job gets this big, then the teacher is probably writing enabling objectives,

not terminal objectives. Experience has shown that for most units of instruction one semester in length, there typically are about 15-25 terminal performance objectives for that class. Remember, if you are teaching the accomplishments of the explorers, write one terminal objective to cover that topic rather than many enabling objectives, one for each explorer.

When you write terminal performance objectives based upon an existing set of program goals or competencies, you are at the stage in which you are defining the specific content for the various classes in the program. And these class objectives are always directly related to the goals of the total program. The terminal performance objectives describe those things the students must do so that they will be able to achieve the program goal.

On the next page is the Response Sheet for Enabling Objective #4. Here you will be able to practice writing terminal performance objectives which relate to a given program goal.

Feedback

Use the following check list to analyze your answers to determine if they are correct. It is assumed your program goals have been corrected in Module #1.

Terminal Performance Objectives

	TPO #1.1		TPO #1.2		TPO #2.1		TPO #2.2	
	Yes	No	Yes	No	Yes	No	Yes	No
1. Are the conditions correctly stated?	___	___	___	___	___	___	___	___
2. Is the desired performance correctly stated?	___	___	___	___	___	___	___	___
3. Are the criteria correctly stated?	___	___	___	___	___	___	___	___
4. Would one have to achieve the TPO in order to master the program goal?	___	___	___	___	___	___	___	___
5. Does the TPO describe the testing situation rather than the learning stituation?	___	___	___	___	___	___	___	___
6. Is the TPO at an appropriate level of specificity?	___	___	___	___	___	___	___	___

"Yes's" must be checked for all four terminal performance objectives.

If you wrote the performance objectives correctly, move on to the next section of the module.

If you did not write the performance objectives correctly, go back and read this section of the module again.

Response Sheet for Enabling Objective #4

Select two program goals from your area of specialization. Write one goal on each of the lines provided; then write at least two terminal performance objectives for each goal on the succeeding lines.

Goal #1: _____

_____

Performance Objective #1.1: _____

_____

_____

_____

Performance Objective #1.2: _____

_____

_____

_____

Goal #2: _____

_____

Performance Objective #2.1: _____

_____

_____

_____

Performance Objective #2.2: _____

_____

_____

_____

Now turn the page to the Feedback section and check your answers.

A Set of Course Performance Objectives

Terminal Performance Objective

Given program goals in your area of specialization, you will write a set of terminal performance objectives for one course in that program. All of the terminal performance objectives will:

(a) describe what the learner will do in behavioral terminology at the end of the course
(b) describe under what conditions the learner will perform
(c) describe how well the learner will perform
(d) relate to one or more program goals
(e) be at an appropriate level of specificity for a terminal performance objective
(f) describe the outcomes of the course

At this point you should have mastered the mechanics of writing performance objectives. Now you should be ready to apply your skills to create a product which you can use--a complete set of performance objectives for a class you will be teaching.

There are two general approaches which one could take when writing performance objectives for a program.

1. One could write all supporting performance objectives for each program goal and then divide those objectives among the classes.

2. One could write a set of objectives for each class using the program goals as a reference point.

We are going to take the latter approach in this module since the first approach takes too much time to complete as part of this learning experience.

When taking this approach, one should note that it may occur that not all program goals are covered because a single course in a program may not, in fact, deal with content related to all of the program goals. But, one should be able to relate each objective which is written to one or more of the competencies on the total list. (Note: Often a single terminal performance objective can support many program goals. This is perfectly correct.)

Response Sheet for the Terminal Performance Objective

Select one course in a program in your area of specialization. Write a set of terminal performance objectives (TPO's) for that course. Write your objectives on another piece of paper. At the top of the page provide the following information:

Name of Program
Name of Course (or grade level and subject area for the elementary level)

After each TPO indicate in parentheses the number of the program goal which the TPO supports. It is assumed that you already have a list of program goals available for use. Attach this list to your course TPO's.

Feedback

Analyze each TPO on your list using these standard criteria below.

	YES	NO	IF NO, WHICH TPO'S ARE INCORRECT
1. Are the conditions correctly stated?	___	___	_____
2. Is the desired performance correctly stated?	___	___	_____
3. Are the criteria correctly stated?	___	___	_____
4. Would one have to achieve the TPO in order to master the program goal?	___	___	_____
5. Does the TPO describe the testing situation rather than the learning situation?	___	___	_____
6. Is the TPO at an appropriate level of specificity?	___	___	_____

All of the course TPO's must be perfectly written. Thus, all "yes's" must be checked for each terminal performance objective.

VII. EXIT TEST

The Exit Test is administered to assess achievement. Are you ready for the final evaluation? Do you have any questions? If so, see your instructor or an expert in your school district for help. If not, go on to the Exit Test.

THE TEST

The Exit Test for this module is to show successful completion of the response sheet for the terminal performance objective. Therefore, turn in the response sheet for the terminal performance objective (p. 42) to your instructor. These activities encompass all of the learning in this module.

APPENDIX

Glossary - Module 2

1.	Behavioral verb	Measurable, observable verb; action verb
2.	Components	Parts of a performance objective
3.	Conditions	Any constraints of time or materials placed on the learner that affect or limit his performance
4.	Criteria	The minimum acceptable performance the instructor will accept as evidence of achievement of the objective
5.	Enabling objective	A behavioral statement of a student performance which are the steps a student goes through to complete the terminal performance objective. Two or more enabling objectives support a terminal performance objective.
6.	Performance	What the learner is expected to do
7.	Performance objective	A statement of educational intent that indicates the behavior a student will demonstrate upon successful completion of a learning experience
8.	Process	A means to the end (product)
9.	Product	An end result
10.	Program (Instructional)	An organization of subject matter and interrelated learning experiences designed to lead students to achieve prespecified goals and objectives in a systematic basis. A program consists of two or more courses.
11.	Program goal	General, student-oriented behavioral statements which take the mastery of two or more performance objectives to demonstrate but do not refer to conditions or criteria
12.	Terminal performance objective	A behavioral statement of learner outcomes typically at the end of a course. Two or more terminal performance objectives support a program goal.

COMMUNITY COLLEGE APPLICATION

PERFORMANCE OBJECTIVES

Before you read Module #2, read this and think of your community college situation . . .

When community college instructors have a set of program goals to which the courses they are teaching should relate, they have the basis for the course's performance objectives. But it's usually not all that easy to move beyond this point. The typical community college teacher has been given a specific amount of content to "cover" and most often, this information is put into the standard textbook which also must be "covered".

Teachers often make two general mistakes when they start translating their course into behavioral terminology. First, many instructors take the book and begin to write performance objectives for each primary section of each chapter. Another approach to writing performance objectives is to take the lecture notes for the course and start putting these topics into behavioral format. Both of these approaches lead to performance objectives which are too specific, too numerous, and not closely related to the competencies or program goals.

Vocational teachers have a special concern. Many occupational subjects focus upon a series of skills which need to be taught in a carefully, pre-planned sequence. It is very easy for teachers to emphasize this sequence of small steps which are required for students. But if the performance objectives are written around each of these steps, neither the student nor the teacher can be aware of what the major outcomes of the course are.

As you begin thinking about how to write performance objectives, it is important to begin with a fresh approach to your course content. Do not necessarily feel confined to one teaching process, one textbook, one set of learning activities. First, identify the competencies which relate to your class. What steps in the learning process fall into the scope of the class you are teaching? Don't worry about what's always been taught, but what you can do to help students achieve the program goals.

The next step is to select ten - fifteen major skills, knowledge, or judgments which students should be able to demonstrate when they leave your class. Remember, at this point, you are concerned with what students should be able to do, not what you, the instructor, will be doing as you teach the class. And you are not thinking of lesson plans. You are devising major outcomes of the class. Perhaps it would help to think of the major units you will teach. Probably each unit will have three - four performance objectives. Spend your time thinking, not writing!

After you read Module #2, read this and consider applications to community college programs . . .

At this point in the module you should have written a complete set of performance objectives for the course you are now teaching, or a course you will be teaching. This part of the community college application section will help you identify any typical

errors which you may have made. You can correct these mistakes by reading the:

1. sample community college performance objectives and an analysis of them showing the typical errors, and

2. complete sets of performance objectives for a few community college classes.

It is easy to learn the basic principles of writing performance objectives and miss some of the finer points in the application to your own discipline. Let's examine some community college performance objectives to see how some of these errors can occur. First, read this objective from a community college nursing assistant course:

> Given a list of standard abbreviations, the student, without references, will take a written test on the abbreviations. Evaluation will be judged satisfactory if there is 80% accuracy on the test.

Remember, an objective does not describe a learning activity, but rather describes the outcome of the activity. So, taking the test is not critical. What is critical is that the student should learn the definitions of some terms which are not even specified. Therefore, Rule #1 is:

OBJECTIVES ARE WRITTEN IN TERMS OF CONTENT
NOT LEARNING ACTIVITY

However, read this nursing assistant objective again. There is another rule which can be applied to the revision of this objective. In most cases, those performance objectives which relate to learning definitions, are <u>not</u> terminal performance

objectives. We learn words so that we can do something else. Therefore, definitional tasks are usually enabling objectives. Rule #2 is:

DEFINITIONS ARE USUALLY NOT APPROPRIATE FOR TERMINAL PERFORMANCE OBJECTIVES

A variation of this rule involves learning the names and parts of various kinds of equipment.

In a community college course in oxy-acetylene welding, there is a performance objective which reads:

> Given 14, 16, and 18 gauge steel, a filler rod, a 3/32" commercial brazing rod, and an uncoated brazing flux, the student will make a lap joint and a "T" joint with proper adhesion to all pieces.

This performance objective certainly sounds technical, but upon second glance, there's a very critical part which isn't precise enough. This is the criteria. Writing specific criteria is one of the most difficult parts of objective writing, and sometimes we just can't write "perfect" criteria, but this one could be better. The problem is with the word "proper". Behaviorally speaking, what does "proper" mean. This often is in the same category with the criteria words such as "correct", "appropriate", and "acceptable". Perhaps you can add some more to the list. In all cases the student would have to ask the teacher if the joint had proper adhesion, for example. All of these samples are a matter of personal opinion. What one person thinks is appropriate, you'll probably be able to find another who thinks it's not appropriate. Therefore, Rule #3 says:

WRITE PRECISE CRITERIA WHICH PROVIDE FOR OBJECTIVE EVALUATION BY SEVERAL PERSONS

Again, this welding example can serve two purposes. To allow for ease of evaluation, performance objectives are usually written for just one behavior. By rereading this objective you'll see that two behaviors are called for -- to make a lap joint and to make a "T" joint. Thus, Rule #4:

DESCRIBE ONLY ONE BEHAVIOR IN A PERFORMANCE OBJECTIVE

Objectives written with two behaviors can be remedied usually by doing one of three things. First, as in the welding example you could simply write two performance objectives. This would be done for two topics, each of which are very important and do constitute major outcomes of the course. The second way of solving the problem is to describe the behavior more generally, so that both behaviors would be subsumed in the one term, such as "weld the major types of joints". The third remedy can be explained using the following example for a course in aircraft structural repair:

> Given a blueprint of an aircraft component requiring bending and appropriate materials, the student will determine the neutral axis of the bend, determine the demensions and prepare a layout on the metal for the bend. Calculated dimensions and layout drawings will be within .030 inch of the specification provided.

This performance objective is really going above and beyond the call of duty. If a student were to prepare a layout on the metal for a bend, that student would have to go through the other parts of the process. So the third way to solve the double behavior syndrome is to describe only the last step in the process. These situations are common in community college vocational education programs.

These sample performance objectives should sharpen up your analysis skills, if you review the major principles of writing performance objectives which were presented in this module, and analyze your own list. You may find some statements which could be sharpened. In addition, you have two complete sets of terminal performance objectives from community college programs. Even though these may not be from courses in your area of specialization, you may find sources of comparison between your list and these other vocational education objectives. If you do find errors, correct your objectives before progressing to the final examination for Module #2.

PROGRAM: Clerk Stenographer

COURSE: Clerk Stenographer I

TERMINAL PERFORMANCE OBJECTIVES:

1. Given a shorthand plate from the textbook, the student will read a complete plate with no more than three prompts.

2. Given dictation of brief form outlines, the student will transcribe all brief forms accurately.

3. Given dictation on familiar and practiced material at 60 words per minute for three minute periods, the student will transcribe two takes with 96% accuracy.

4. Given dictation on familiar and practiced material the student will transcribe mailable letters (gramatically correct and error free) at a rate of 10 words per minute.

5. Given a five-minute straight copy time writing, the student will type material at 40 words per minute with no more than five errors.

6. The students will type attractively placed (balanced margins), neat copies of the following within continuously decreasing periods of time in mailable form:
   a. letters on executive-size, governmental, and standard size stationery.
   b. memorandums
   c. multiple carbons
   d. tabulated reports
   e. envelopes
   f. forms-invoices, vouchers, checks, purchase requisitions
   g. manuscripts and business reports
   h. index cards

7. Given weekly vocabulary and spelling practice from a list of 120 commonly mispelled words, the student will:
   a. syllabicate and pronounce all words on the list with 100% accuracy.
   b. write definitions and sentences for all words with 95% accuracy
   c. spell words with 95% accuracy.

8. Given exercises in sentence punctuation, the student will complete the exercises by inserting the correct marks of punctuation with 95% accuracy.

9. Given dictation, the student will insert correct punctuation marks in all transcribed material with 96% accuracy.

PERFORMANCE OBJECTIVES

AUTO MECHANICS I PRIMARY REPAIR

1. Given an auto tire and rim, a tire changing machine, an air line and a gauge, you will mount the tire on the rim so that it holds the required air pressure given on the tire.

2. Given a mounted tire, you will balance the wheel to run with no vibration at road speeds of 0-80 mph.

3. Given a punctured tire, you will perform the necessary steps in repair so that it will hold proper inflation.

4. Given an automobile cooling system and the necessary equipment, you will perform the following tests without error:
   a. thermostat operation
   b. freeze point
   c. pressure

5. You will perform the necessary annual maintenance on a cooling system without error and without causing leaks.

6. Given the necessary tools, you will remove and replace auto exhaust pipes, tail pipes and mufflers so that the system is safe from leaks and exposure.

7. Given the necessary tools you will remove and replace auto accessories in such a way as to function with no error.

8. Given the proper tools, you will inspect and remove and replace drive belts so that they do not slip.

9. Given the necessary equipment, you will lift a car safely and with no damage for the purpose of under car service.

10. Given the factory charts, you will lubricate all the chasis lubrication points including wheel bearings and differential with no mistakes.

11. Given the factory specifications, you will perform the periodic lubrication checks and oil and filter change required without error.

12. Given the necessary equipment, you will do the required service on an auto battery and its cables with no mistakes, in installation or in function.

13. You will inspect all brake components without error for safety and replacement needs.

14. You will do a minor auto tune up without a malfunction.

15. You will, from a selection made by the teacher, name and describe the proper use of tools commonly used in auto repairs. From a group of 20 you should do 15 accurately.

16. Given the necessary equipment, you will perform without error the necessary service station apron service on an automobile without any ommissions.